

## Claims

~~1. A device for (crushing) a hydrous polymer gel, comprising two rolls (11,12) located axially parallel and rotating in opposite directions having between them a nip (13) for the passage of the polymer gel (10), characterized in that one roll is formed as a cutting roll (11) which is provided with at least one axially extending cross cutting element (15) having a cutting edge (17) and with a radially extending longitudinal cutting element (14) provided with a cutting edge (18) (running) around it, and that the other roll is formed as a back-up roll (12).~~

~~2. A device for (crushing) a hydrous polymer gel, comprising two rolls (12,19) located axially parallel and rotating in opposite directions between which a nip (13) for the passage of the polymer gel (10) is formed, characterized in that one roll is formed as a cross cutting roller (19) which is provided with at least one axially extending cross cutting element (15) provided with a cutting edge (17), that the other roll is formed as a back-up roll (12), and that a longitudinal cutting roller (20) with at least one radially extending slitting element (14) provided with a cutting edge (18) (running) around it is arranged ahead of the cross cutting roller (19).~~

~~3. The device according to at least one of the preceding claims characterized in that the width of (the roll gap) (13) approximates the height of the cross cutting elements (15) (and/or) longitudinal cutting elements (14).~~

~~4. The device according to at least one of the preceding claims characterized in that the width of the roll gap (13) is variable.~~

~~5. The device according to at least one of the preceding claims characterized in that (the longitudinal cutter) (14) is (formed) such~~

that its circumferential rate is higher than the conveying rate of the polymer gel (10).

*a*  
all

6. The device according to ~~at least one of the preceding claims~~ characterized in that the cross cutters (15) are formed of a flat steel polished on one side. *Claim 1 or 2* ←

*a*  
all?

7. The device according to ~~at least one of the preceding claims~~ characterized in that the cross section of the cross cutting elements (15) is plane or has the form of a sickle. *Claim 1 or 2* ←

*a*  
all?

8. The device according to ~~at least one of the preceding claims~~ characterized in that the cross cutters (15) are arranged in parallel (or spindle-like) to the longitudinal axis of the cutting roll (11) or (cross cutting roll) (19). *Claim 1 or 2* ←

*a*  
all

9. The device according to ~~at least one of the preceding claims~~ characterized in that the back-up roll (12) conveys the polymer gel (10) and presses it against the cross cutters (15) and/or longitudinal cutters (14) during cutting. *Claim 1 or 2* ←

*a*  
all

10. The device according to ~~at least one of the preceding claims~~ characterized in that the back-up roll (12) is coated with a plastic material, in particular with polyethylene, polypropylene, Teflon, or the like. *Claim 1 or 2* ←

*a*

11. The device according to ~~at least one of the preceding claims~~ characterized in that the back-up roll (12) has a surface provided with (depressions) which can receive the cutting edges (17,18) of the cross cutting elements (15) (and/or longitudinal cutting elements (14)). *Claim 1 or 2* ← R33 ←

12. A process for coarse grinding hydrous polymer gels characterized in that the hydrous polymer gel (10) is coarsely ground into

polymer gel pieces of a given size immediately after polymerization without any auxiliaries or additional technical measures, using a device according to at least one of the preceding claims.

13. The process according to claim 12 characterized in that coarse grinding is effected in a continuous flow of material.

